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PATENT ABSTRACTS OF JAPAN

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(71)Applicant : MITSUBISHI ELECTRIC CORP

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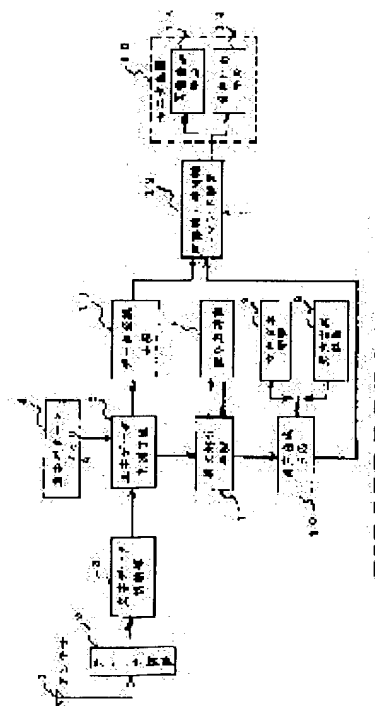
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(54) DATA BROADCAST DISPLAY DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To allow a user to widely utilize many character data by converting display of various character data under a high-speed condition and outputting an explanatory synthesized voice signal together with the display allowing the user to momentarily understand it.

SOLUTION: A character data storage section 3 temporarily stores broadcast character data, a character data discrimination means 5 discriminates coincidence/dissidence between a pre-estimated fixed form character string stored in a character pattern memory 4 with a character string stored in the character data storage section 3, identifies the fixed form character string included in the character data and a data conversion means 11 converts the fixed form character string into display conversion data. On the other hand, a syntax analysis means 7 segments a word from the fixed form character string, decomposes a reading of the word in a unit of phoneme, a voice synthesizing means 10 extracts the phonemes from phoneme dictionaries 8, 9 to synthesize the voice. A coordinate axis.time base command device 12 outputs the display conversion data and synthesized voice from a monitor 15.



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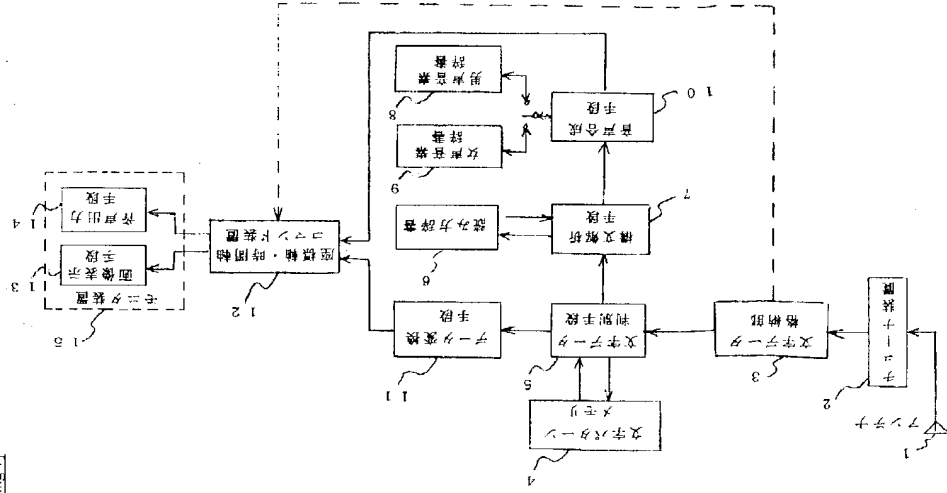
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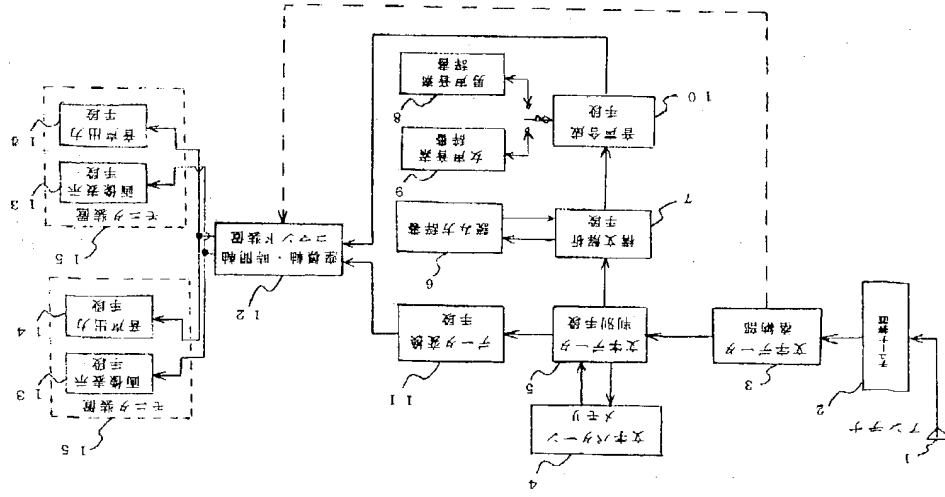
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DRAWINGS

[Drawing 1]





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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The block diagram showing the gestalt 1 of implementation of this invention.

[Drawing 2] The block diagram showing the alphabetic character data storage section of the gestalt 6 of implementation of this invention.

[Drawing 3] The block diagram showing the alphabetic data distinction means of the gestalt 7 of implementation of this invention.

[Drawing 4] The block diagram showing the gestalt 8 of implementation of this invention.

[Drawing 5] The outline system chart showing only the related section of the gestalt 9 of implementation of this invention.

[Description of Notations]

1: An antenna, 2:tuner equipment, 3:alphabetic character data storage section, 4:character pattern dictionary, 5:alphabetic data distinction circuit, 6:reading dictionary, 7:syntax-analysis means, 8:male voice phoneme dictionary, 9:female voice phoneme dictionary, 10:speech synthesis means, 11:data-conversion memory, 12:axes of coordinates and time-axis command equipment, 13:image display means, 14:voice output means, 15 : monitoring device.

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CLAIMS

[Claim(s)]

[Claim 1] The character-pattern memory which carries out preservation storing of the fixed form character string beforehand assumed to be the alphabetic character data storage section which stores the alphabetic data inputted by time series for a time, An alphabetic data distinction means to identify the fixed form character string which distinguishes coincidence/inequality of the fixed form character string stored in the character-pattern memory concerned, and the character string read from said alphabetic character data storage section, and is contained in this alphabetic data, A data-conversion means to change into display translation data the fixed form character string which stored the display translation data beforehand set up corresponding to the fixed form character string concerned, and was identified with the alphabetic data distinction means, An syntax-analysis means to start a word from said fixed form character string, and to decompose reading of the corresponding word per piece of a phoneme, A speech synthesis means to take out the piece of a phoneme from the phoneme dictionary in which the piece of a phoneme is stored beforehand based on the piece unit of a phoneme from an syntax-analysis means, and to compound voice, The display translation data from said data-conversion means is displayed on an image display means. The monitoring device which outputs said synthesized speech from a voice output means, and said display translation data The data-broadcasting display characterized by having the axis of coordinates and time-axis command equipment which determines the output time of day of said synthesized speech to compensate for the display of said display translation data while assigning the coordinate field which can display an image display means.

[Claim 2] Said data-conversion memory is a data-broadcasting display according to claim 1 characterized by having display translation data corresponding to a fixed form character string according to the class of topical news, a weather report, and stock price news flash at least.

[Claim 3] Said axis of coordinates and time-axis command means are a data-broadcasting display according to claim 1 or 2 characterized by having map data which display the base map used as the foundation of the forecast concerned or news when the alphabetic data inputted by time series is a weather report or topical news.

[Claim 4] It is the data-broadcasting display according to claim 1 to 3 which, as for an alphabetic data distinction means, separates reading, and is characterized [the / which carries out reading through and compounds voice with a speech synthesis means] by delivery and the syntax-analysis means at an syntax-analysis means when alphabetic data is a kanji and a character string notation and its reading are also inputted together.

[Claim 5] An syntax-analysis means is a data-broadcasting display according to claim 1 to 3 characterized by having the dictionary of the reading to the kanji in character-pattern memory, and decomposing a fixed form character string into it per piece of a phoneme with reference to the dictionary concerned when the fixed form character string by which preservation storing was carried out is a kanji.

[Claim 6] It is the data-broadcasting display according to claim 1 to 4 characterized by drawing up the reading dictionary to which the syntax-analysis means made a character string notation and its reading correspond when a character string notation and its reading were also inputted together by the case where alphabetic data is a kanji.

[Claim 7] A reading dictionary is a data-broadcasting display according to claim 5 characterized by having a table correspondence-related [with reading over the notation which omitted the notation of normal, and the notation of normal].

[Claim 8] It is the data-broadcasting display according to claim 1 to 3 characterized by for an alphabetic data distinction means separating the alphabetic data for explanation, and for delivery and an syntax-analysis means disassembling the alphabetic data for explanation into an syntax-analysis means per piece of a phoneme, and compounding voice with a speech synthesis means when the alphabetic data for explanation for voice to explain a character string notation and its notation is inputted.

[Claim 9] It is the data-broadcasting display according to claim 1 to 3 characterized by being made the configuration which an axis of coordinates and time-axis command equipment display display translation data on the image display means of a monitoring device at the time of day set up based on the Q signal when the Q signal of time of day which reports alphabetic data and its alphabetic data is inputted into beforehand [of information time of day], and outputs synthesized speech from said voice output means.

[Claim 10] An alphabetic data distinction means distinguishes coincidence/inequality of the fixed form character string stored in character-pattern memory, and the character string read from said alphabetic character data storage section. Have the memory which memorizes the identified fixed form character string, and future processings are stopped, when coincidence/inequality with the fixed form character string by which memory storage was carried out with the character string newly read from said alphabetic character data storage section are distinguished and it is in agreement. The data-broadcasting display according to claim 1 to 3 with which it is characterized by continuing future processings only in the case of an inequality.

[Claim 11] It is the data-broadcasting display according to claim 1 to 10 which two or more monitoring devices are formed and is characterized by an axis of coordinates and time-axis command equipment assigning said display translation data to the image display means of each monitoring device.

[Claim 12] It is the data-broadcasting indicating equipment according to claim 1 to 10 characterized by being made the configuration which outputs the interface signal which it has two or more data-broadcasting indicating equipments, two or more data-broadcasting indicating equipments are connected mutually, and the axis of coordinates and time-axis command equipment of any one

data-broadcasting indicating equipment take a synchronization between each equipment, and controls the image display of each monitoring device, and an assignment of a voice output.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]
[Field of the Invention] a lot of alphabetic data with which it is suitably obtained through a medium, such as a homepage of a teletext [in / in this invention / FM radio or television broadcasting], or the Internet communication link, -- more -- a check by looking -- it is related with processing / data-broadcasting display which outputs the synthesized speech for the explanation while displaying serially in an easy format.

[0002]
[Description of the Prior Art] It is ***** for generalizing the so-called teletext with the advance of various means of communications recently. a teletext be character representation data transmission of a up to [the monitoring device in FM radio or a television broadcasting], and even if it visualize a message and do not have voice , it be a broadcast type with the advantage excellent in the point that exact information can be transmit to the point that a semantic content can be make to understand an instant and certainly , a perimeter environment , a hearing-impaired person at the time of the visual and auditory senses , etc. , instancy etc.

[0003] However, since it is sent/received as alphabetic data of time series with general least data volume, a teletext cannot but be the enumeration display of a mere character string, when seeing an alphabetic character on a monitor. Sex information will be displayed on monitor display with the data format of [it is the same and] the simplest alphabetic data various kinds of quantity instancy also with the news on the Internet as which a sex is required of this point instancy, a weather report, and stock price news flash.

[0004]
[Problem(s) to be Solved by the Invention] By the way, in the side which receives this alphabetic data transmission, although a lot of information exact to be sure can come to hand instancy, the troublesome psychogenesis is needed for deciphering a lot of character strings serially. however, a lot of alphabetic data -- a check by looking -- if it is going to change into other easy expression data format (for example, an icon / map / graphical representation), since acquisition data at each time differ, the processing will become huge. Speaking more concretely, also at the lowest, data-conversion processing for the formation of check-by-looking easy taking the several times as many time amount as this for the teletext of a batch also as about 60 seconds.

[0005] When it passes through the artificial actuation which reads and understands it once since broadcast alphabetic data is quite a lot of amount of information, and is transposed to other convertible transcriptions, the actual condition is that a real time display is not made by the time lag which the processing takes. Of course, although there is sense which tries the notice processing whose sex current has the instancy which used the teletext as the data source, in having minded the artificial processing step, various kinds of alphabetic data with a sex high instancy is not efficiently indicated by notice.

[0006] Then, the purpose of this invention is in the point for which a lot of alphabetic data is made to utilize effectively widely by the user by carrying out display conversion of various kinds of alphabetic data under high-speed conditions more, and outputting the synthesized speech for the explanation with the display in which instant understanding is possible.

[0007]
[Means for Solving the Problem]

[0008] The data-broadcasting display of this invention according to claim 1 The character-pattern memory which carries out preservation storing of the fixed form character string beforehand assumed to be the alphabetic character data storage section which stores the alphabetic data inputted by time series for a time, An alphabetic data distinction means to identify the fixed form character string which distinguishes coincidence/inequality of the fixed form character string stored in the character-pattern memory concerned, and the character string read from said alphabetic character data storage section, and is contained in this alphabetic data, A data-conversion means to change into display translation data the fixed form character string which stored the display translation data beforehand set up corresponding to the fixed form character string concerned, and was identified with the alphabetic data distinction means, An syntax-analysis means to start a word from said fixed form character string, and to decompose reading of the corresponding word per piece of a phoneme, A speech synthesis means to take out the piece of a phoneme from the phoneme dictionary in which the piece of a phoneme is stored beforehand based on the piece unit of a phoneme from an syntax-analysis means, and to compound voice, The display translation data from said data-conversion means is displayed on an image display means. While assigning the monitoring device which outputs said synthesized speech from a voice output means, and said display translation data to the coordinate field which can display an image display means, it has the axis of coordinates and time-axis command equipment which determines the output time of day of said synthesized speech to compensate for the display of said display translation data.

[0009] As for the data-broadcasting indicating equipment of this invention according to claim 2, said data-conversion memory is equipped with the display translation data corresponding to a fixed form character string according to the class of topical news, a weather report, and stock price news flash at least.

[0010] The axis of coordinates and time-axis command means in the data-broadcasting indicating equipment of this invention according to claim 3 are equipped with the map data which display the base map used as the foundation of the forecast concerned or news when the alphabetic data inputted by time series is a weather report or topical news.

[0011] When alphabetic data is a kanji and the data-broadcasting indicating equipment of this invention according to claim 4 also inputs a character string notation and its reading together, an alphabetic data distinction means separates reading and delivery and an syntax-analysis means are the thing which carries out reading through and compounds voice with a speech synthesis means at an syntax-analysis means.

[0012] When the fixed form character string by which preservation storing of the syntax-analysis means was carried out at character-pattern memory is a kanji, the data-broadcasting display of this invention according to claim 5 has the dictionary of the reading to the kanji, and decomposes a fixed form character string per piece of a phoneme with reference to the dictionary concerned.

[0013] When alphabetic data is a kanji and the data-broadcasting indicating equipment of this invention according to claim 6 also inputs a character string notation and its reading together, an syntax-analysis means draws up the reading dictionary to which a character string notation and its reading were made to correspond.

[0014] Data-broadcasting display of this invention according to claim 7 A reading dictionary has a table correspondence-related [with reading over the notation which omitted the notation of normal, and the notation of normal].

[0015] Data-broadcasting indicating equipment of this invention according to claim 8 When the alphabetic data for explanation for voice to explain a character string notation and its notation is inputted, an alphabetic data distinction means separates the alphabetic data for explanation, delivery and an syntax-analysis means disassemble the alphabetic data for explanation into an syntax-analysis means per piece of a phoneme, and voice is compounded with a speech synthesis means.

[0016] When the data-broadcasting indicating equipment of this invention according to claim 9 inputs into beforehand [of information time of day] the Q signal of time of day which reports alphabetic data and its alphabetic data, an axis of coordinates and time-axis command equipment display display translation data on the image display means of a monitoring device at the time of day set up based on the Q signal, and is made the configuration which outputs synthesized speech from said voice output means.

[0017] The data-broadcasting display of this invention according to claim 10 An alphabetic data distinction means distinguishes coincidence/inequality of the fixed form character string stored in character-pattern memory, and the character string read from said alphabetic character data storage section. It has the memory which memorizes the identified fixed form character string, when coincidence/inequality with the fixed form character string by which memory storage was carried out with the character string newly read from said alphabetic character data storage section are distinguished and it is in agreement, future processings are stopped, and only in the case of an inequality, future processings are continued.

[0018] As for the data-broadcasting display of this invention according to claim 11, two or more monitoring devices are formed, and an axis of coordinates and time-axis command equipment assign said display translation data to the image display means of each monitoring device.

[0019] As for the data-broadcasting indicating equipment of this invention according to claim 12, it has two or more data-broadcasting indicating equipments, and two or more data-broadcasting indicating equipments are connected mutually, and the axis of coordinates and time-axis command equipment of any one data-broadcasting indicating equipment take a synchronization between each equipment, and is made the configuration which outputs the interface signal which controls the image display of each monitoring device, and an assignment of a voice output.

[0020]

[Embodiment of the Invention] Gestalt 1. drawing 1 of operation shows an example of the data-broadcasting display concerning this invention. A whole configuration is explained first. The antenna with which 1 receives the electric wave of a teletext, the tuner equipment with which 2 tunes in the received electric wave in an antenna 1, The alphabetic character data storage section which stores the alphabetic data which tunes in 3 with tuner equipment 2 and is inputted by time series for a time, The character-pattern memory which carries out preservation storing of the fixed form character string which assumed 4 beforehand, and 5 distinguish coincidence/inequality of the character string read from said alphabetic character data storage section 3, and the fixed form character string stored in the character-pattern memory 4. It is an alphabetic data distinction means to identify the fixed form character string contained in alphabetic data.

[0021] When the fixed form character string by which preservation storing of 6 was carried out at the character-pattern memory 4 is a kanji, The reading dictionary which carries out preservation storing of the reading to the kanji, and 7 start a word from the fixed form character string which the alphabetic data distinction means 5 identified. An syntax-analysis means to decompose reading of the corresponding word into the symbol string corresponding to the piece of a phoneme of a fixed form character string with reference to said reading dictionary 6, the male voice phoneme dictionary, in which, as for 8, the piece of a phoneme of a symbol string and male voice is stored beforehand, and 9 are female voice phoneme dictionaries in which the piece of a phoneme of a symbol string and female voice is stored beforehand.

[0022] A speech synthesis means for 10 to take out a phoneme from the male voice phoneme dictionary 8 or the female voice phoneme dictionary 9 based on the symbol string corresponding to the piece of a phoneme from an syntax-analysis means, and to compound voice, The display translation data which set up 11 beforehand corresponding to the fixed form character string, a data-conversion means to store an icon with high visibility (graphic form mark) with the gestalt 1 of this operation, While 12 assigns the translation data from the data-conversion means 11 to the coordinate field which can be displayed on the image display means 13 of a monitoring device 15 They are the axis of coordinates and time-axis command equipment set up so that synthesized speech may be outputted from the voice output means 14 according to the time of day (timing) which a display icon displays.

[0023] moreover, conversion efficiency -- raising -- the display after conversion -- a check by looking -- since it is easy, as for the data-conversion means 11, it is desirable to have display translation data corresponding to a fixed form character string according to the class of topical news, a weather report, and stock price news flash at least. In order to plan **** of a check by looking, display translation data changes and displays time series input-statement character data on either at least among a graphic form and a special pattern alphabetic character.

[0024] In various kinds of market price news flashes (a stock price, a money order, market price news of grain and others), the thing which face [carrying out graphical representation of the numeric value included in alphabetic data] the data-conversion means 11, changes the past stock price fluctuation data (and future fluctuation prediction based on a predetermined operation) into a graphical

representation, and indicates by coincidence and which can be been made to carry out is desirable.

[0025] Although this data-broadcasting display works irrespective of the contents (classification) of the teletext, since explanation is easy, it is explained below by making data conversion of a weather report into an example.

[0026] The weather of the concrete field (for example, Ishikari district) of the fixed form which divided the weather report at plurality in the whole area (for example, Hokkaido) which serves as the date and a candidate for a forecast at worst as contents of the alphabetic data, and the area concerned, and a concrete field, atmospheric temperature, and probability of precipitation are offered.

[0027] The field of the weather report of the national unit described at worst by the fixed form pattern in such conditions by the character-pattern memory 4 for deciphering a premise, then a fixed form character string, the concrete area name in the field, the contents of the forecast weather, a figure, and notations (% , HP, etc.) are stored. as the contents of the forecast weather -- concrete -- for example, "fine", "stretch", fine ["fine", the "overcast", "cloudy weather", "cloudiness", "rain", a "candy", and "snow" -- -- dying -- an altitude fixed form pattern like "being / evening / "" "one time" and "out of the morning", a "front", a "trough" and a "typhoon" -- an "it is sometimes" "*****"] Secondary fixed form patterns, such as "it being wakeful" "from dawn", a "coat", "one SE evening", and a "coat", etc. make how many kinds of those character strings memorize. ["*****", a "sultry night", a "tropical day", being a "ice day", it is "evening glow", "it being chilly", "autumnal leaves", and "until a morning"] In this case, the needed class of character string is about at most 100 kinds. The data-conversion means 11 changes such character expression into an icon with high visibility (graphic form mark).

[0028] On the other hand, from the fixed form character string which said alphabetic data distinction means identified, the syntax-analysis means 7 starts a word and decomposes reading of the corresponding word per piece of a phoneme with reference to the reading dictionary 11. For example, "Ishikari district It is fine and, in after [] rain", decomposes into "/i/shi/ka/ri/chi/ho/u//ha/re/ /no/chi/ /a/me/." And the notation which corresponds for every piece of a phoneme of this is attached, and it outputs to the speech synthesis means 10.

[0029] The speech synthesis means 10 takes out the piece of a phoneme which inputs the notation from the syntax-analysis means 7, and corresponds from the male voice phoneme dictionary 8 or the female voice phoneme dictionary 9, and synthesizes voice. At this time, a user chooses the direction where it was suitable for the contents of the teletext whether the male voice phoneme dictionary 8 is used or the female voice phoneme dictionary 9 is used. Moreover, as other approaches, with alphabetic data, the classification of voice is specified and it transmits from a broadcasting station. In this case, the speech synthesis means 10 synthesizes voice using the dictionary of the classification of the voice specified from the broadcasting station.

[0030] On the other hand, an axis of coordinates and time-axis command equipment 12 determine the coordinate point of the area concerned, especially the coordinate point in the whole map used as the candidate for a forecast from the character-string-data train which displays an area name. Consequently, the fixed form character string by which an input with the passage of time is carried out will be first changed into the icon of a fixed form through the alphabetic data distinction means 5 and the data-conversion means 11, and the weather icon concerned will be displayed on the coordinate location of the specific area which corresponds through an axis of coordinates and time-axis command equipment 12.

[0031] Moreover, an axis of coordinates and time-axis command equipment 12 are set at the time of day which displays the icon of the fixed form changed through the data-conversion means 11 on the image display means 13, and outputs the voice compounded with the speech synthesis means 10 from the voice output means 14.

[0032] However, it is not rare to use for a weather report the expression (static expression) which cannot be expected and twisted. Then, an axis of coordinates and time-axis command equipment 12 are displayed on the image display means 13 of MO 2 TA equipment 15 with the inputted alphabetic data concerned, without changing the character string concerned into icon data, when there is an unexpected expression character string through the alphabetic data distinction means 5 (i.e., when it is a collating inequality) (carrying out through of the data stream] as it is).

[0033] In such a case, the syntax-analysis means 7 starts a word from the data stream which carried out through, and decomposes reading of the corresponding word per piece of a phoneme, and said alphabetic data distinction means 5 attaches the notation which corresponds for every piece of a phoneme of this, and outputs it to the speech synthesis means 10.

[0034] The speech synthesis means 10 takes out the piece of a phoneme which inputs the notation from the syntax-analysis means 7, and corresponds from the male voice phoneme dictionary 8 or the female voice phoneme dictionary 9, and synthesizes voice. An axis of coordinates and time-axis command equipment 12 are set at the time of day which displays the data stream which carried out through of the data-conversion means 11] on the image display means 13, and outputs the voice compounded with the speech synthesis means 10 from the voice output means 14. However, since the concrete area name attaches to alphabetic data (or tag data) even in this case, various kinds of data processings are possible.

[0035] For example, although it is displaying a character string by the structured format most simply, if an area coordinate (coordinate location in the whole map displayed on monitor display) is discriminable at least, it is possible to reduce/expand a character string and to display it on the coordinate location, and character expression can also be carried out as it is using the letter-face conditions (a line / train / character size) restored to the display box set up beforehand. When the number of boxes increases, it is desirable to make a box and a coordinate point in agreement using an arrow-head display, and to raise visibility.

[0036] In addition, that, as for the case of a weather report, a background image should just use the whole forecast maps (for example, the Kanto Koshin-etsu map etc.), since a map display may moreover be a color or a static image is sufficient, there is little possibility of pressing data volume extremely. However, when an animation is mixed in a teletext as a background image, it is necessary to choose proper mode of processing according to the machine capacity of a data-broadcasting display to be used, such as expressing as the image display means 13 of a monitoring device 15, or an animation being disregarded, and indicating the base map by the background by using a certain instantaneous static image as a static image, as it is, most simply, or displaying the animation itself. If the reduced display also of the animation is compressed and carried out, capacity (power) of a data-broadcasting display will not be wasted too much. Moreover, the relation of the coordinate point of the whole map set as the object of a weather report and specific area does not need to give precise relation to altitude. For example, in the case of the Kanto Koshin-etsu area, locations (location), such as Tokyo, Yokohama, Nagano, and Niigata, can carry out location specification within a certain fixed area map whether it is ****. System power may also be stopped to the minimum according to it.

[0037] Next, the case of topical news is explained. Fundamental processing is the same as a weather report, that of the basic configuration of equipment is the same, and is not cared about. However, since the language used is various in the case of topical news, the so-called icon display is difficult for the actual condition. For this reason, although it is fundamentally desirable to display a character string as it is as for topical news, it is desirable to give movement to a character string display for every incident rather than to indicate the character string of an itemized statement by coincidence package simply, and to take the method of a dynamic display. It is taking the itemized display appearance like an electrical scoreboard which moves leftward serially for every character string from the screen right end of the image display means 13 of a monitoring device 15 etc.

[0038] Of course, also in topical news, the icon display is possible. It is because the incident described with a certain amount of fixed form character strings, such as politics, economy, homicide, a traffic accident, a fire, and an earthquake, can have an icon with high visibility in the head of an itemized statement character string, respectively and it can write.

[0039] This is as follows. It is almost certainly identifiable by planning the Election vocabulary, such as legal engines, such as legal executives, such as the "prime minister", a "minister", and a "governor", "Parliament", the "Metropolitan Assembly", a "prefectural assembly", and the "Ministry of International Trade and Industry", "Election", "vote", and "count of the votes", by political-related news. By economical relation news, discernment is mostly possible with discernment of the economy/legal term of common use, such as the "Tokyo Stock Exchange", "London Stock Exchange", "NY commercial scene", a "money order", a "stock price", "GNP", "public funds", "bankruptcy", "bankruptcy", a "composition", a "general meeting of shareholders", an "adoption staff", a "bonus", a "spring labor offensive", and "business", for example.

[0040] the case of a detective / social incident -- for example, "homicide", a "handgun", a "body", an "incident", "consciousness losing", a "serious condition", "hit and run", "a head-on collision", "explosion", "an eruption", an "earthquake", "disaster", a "flood", etc. -- it can acquire epicritic [how many kinds of / high] by that common use keyword which can be assumed. Each of these is independent, or can combine and identify hundreds of kinds of character strings.

[0041] Since a character string is displayed as it is fundamentally, the syntax-analysis means 7 starts a word from a character string, and decomposes reading of the corresponding word per piece of a phoneme, in the case of such topical news, the notation which corresponds for every piece of a phoneme of this is attached, and it outputs it to the speech synthesis means 10.

[0042] The speech synthesis means 10 takes out the piece of a phoneme which inputs the notation from the syntax-analysis means 7, and corresponds from the male voice phoneme dictionary 8 or the female voice phoneme dictionary 9, and synthesizes voice. Or a user chooses whether the male voice phoneme dictionary 8 is used or the female voice phoneme dictionary 9 is used by the title of topical news at this time, from a broadcasting station, the classification of voice is specified, it transmits with alphabetic data, and the speech synthesis means 10 synthesizes voice using the dictionary of the classification of the voice specified from the broadcasting station.

[0043] An axis of coordinates and time-axis command equipment 12 are set at the time of day which displays the character string of topical news on the image display means 13, and outputs the voice compounded with the speech synthesis means 10 from the voice output means 14.

[0044] When carrying out data conversion of the topical news to a notice, it is most wished in respect of visibility that a news source location is shown with the coordinate point on a map. Although there are many news source locations regardless of domestic and outside the country, effectiveness processing is possible also for this in a fixed limitation. What is necessary is for it to change with national news or district news in the case of domestic news, but, as for the case of national news, just to direct the location of all prefectures on the image display means 13 screen of a monitoring device 15 in many cases. Therefore, an axis of coordinates and time-axis command equipment 12 will achieve sufficient function, if area assignment of the all prefectures in the minimum and a national map can be performed.

[0045] Although area is subdivided finely, since the inside of the whole range map restricted in this case is just subdivided in the case of district news, the number of partitions is compared and it is not an activity with coordinate assignment so difficult as ** 100. The same is said of the case of global news. Even when the source of dispatch of the incident used as a news source is limited to 100 or less part and a detail map is needed like [at the time of war outbreak], since a certain amount of prediction preparation is possible for the area concerned, it can respond flexibly.

[0046] When raising visibility and displaying the market price of a stock price money order, it becomes important to carry out graphical representation of the numerical fluctuation. Market price news are not transient and fluctuation progress of a past fixed period is an important technical problem in a sex instance. Therefore, it is desirable to display the fluctuation data for the past several months and several weeks as coincidence or a background image with the digital display as a fact on the day in the news flash notice of a stock price money order, concerning designated speculative stocks.

[0047] The function to realize fluctuation graphical representation in this case does not become power pressure in the latest mass computer system. However, in order to reduce facility cost, even if it is the case where a low-grade system is used, record fluctuation of the past market price as a numeric value each time, and graph conversion is not carried out at the time of a MO 2 TA display. if the method displayed while recording a fluctuation graph as a mere diagram graph (graphic form) and updating this is taken -- the Tokyo Stock Exchange part -- it becomes possible to put up very easily data fluctuation of the huge number of companies containing the two section, Osaka Securities Exchange, and other registration-on-the-over-the-counter-market stocks instance. By using market price fluctuation as a diagram, when processing with this data-broadcasting display is difficult for the method which carries out a grasp notice, if the format which carries out numerical processing with a separate computer apparatus, and carries out updating printing of the fluctuation graphical representation by the suitable span (for example, every day; or one week) is taken, flexible and exact correspondence will be attained. The same is said of the exchange fluctuation of the circle of 1 dol, and the fluctuation of a grain rate.

[0048] according to the data-broadcasting indicating equipment concerning this invention -- the enumeration data of a mere alphabetic character -- a check by looking -- an easy format -- For example, an icon, a map, a characteristic background image, the expanded alphabetic character, a legible font, To a font color, a conversion-table example, the instance spent from broadcast/communication media by designing especially the display position suitably beforehand -- data -- almost -- an instant -- changing -- the screen (for example, large-sized screen installed in a public facility) of the image display means 13 of a monitoring device 15 -- visibility -- it becomes possible to display highly. moreover -- automatic transform processing of instance and an alphabetic character is possible, without

passing through artificial transform processing by automatic study of a character string with high expected setup and frequency -- becoming -- alphabetic data -- visibility -- since synthesized speech is also outputted to the explanation at the same time it displays highly, it is convenient for those who check by looking.

[0049] It is [processing] easier to treat these also in distinction from the time of the alphabetic data obtained from broadcast/communication media having classes, such as a weather report, topical news, and stock price news, and planning check-by-looking ****. In the icon for displaying the base map and the contents of a forecast of forecast area with a weather report there and topical news, the maps (a Japanese map, an all-prefectures map, a world map, map according to country, etc.) for displaying the corresponding city (cities, towns and villages) are prepared, and the birthplaces, such as a source of news dispatch or an incident, are displayed on a map. Since synthesized speech is also outputted to the explanation at the same time it carries out, the stock price (a money order / grain rate is included) is convenient for those who indicate the past fluctuation data (future fluctuation prediction preferably based on a predetermined operation) by the graphical representation and who check by looking.

[0050] in addition, the original alphabetic data may give a coincidence indication of these conversion displays as it is (or a keyword part -- summarizing) if needed. For example, it is also more suitable for there to be poetic contents (for example, "for sunlight to be "wakeful to toward morning", chilly ["chilly"], and dazzling" etc.) with an expression difficult in an icon, and to display alphabetic data as it is rather in that case, even if it is the contents of broadcast/communication link standardized by altitude like a weather report. Moreover, the selected issue stock price at the time of rapid market price fluctuation has what the real time display of the figure should be carried out also for as it is. Since concrete processing decision whether to indicate which part in alphabetic data by through as it is contains an element difficult as automatic processing, it is desirable to entrust decision of the trained staff for a monitor check.

[0051] Although voice was compounded with the gestalt 1 of the gestalt 2 aforementioned implementation of operation from the alphabetic data sent in order to display on the image display means 13, the alphabetic data for explanation for voice to explain a character string notation and its notation may be multiplexed and broadcast from a broadcasting station. In that case, when a data-broadcasting indicating equipment inputs the alphabetic data for explanation for voice to explain a character string notation, the alphabetic data for explanation is separated, delivery and the syntax-analysis means 7 disassemble the alphabetic data for explanation into the syntax-analysis means 7 per piece of a phoneme, and the alphabetic data distinction means 5 compounds voice with the speech synthesis means 10.

[0052] The character-string data by which an input with the passage of time is carried out are first formed into a fixed form character string with the alphabetic data distinction means 5, and are further changed into the icon of a fixed form with the data-conversion means 11. An axis of coordinates and time-axis command equipment 12 determine the coordinate point of the area within the image display means 13 of the changed fixed form icon. Consequently, the fixed form icon concerned will be displayed on the coordinate location of the corresponding specific area.

[0053] On the other hand, an axis of coordinates and time-axis command equipment 12 are set at the time of day which displays a fixed form icon on the image display means 13, and outputs the synthesized speech for fixed form icons from which it synthesized voice with the speech synthesis means 10 from the voice output means 14.

[0054] Thus, with constituting, output voice will become more intelligible as explanation of a fixed form icon, and will become convenient for a user.

[0055] It is the case where the alphabetic data from gestalt 3 broadcasting station of operation is a kanji, and when a character string notation and its reading are also sent together, a character string notation and its reading also input a data-broadcasting display together. An syntax-analysis means creates the table to which a character string notation and its reading were made to correspond, and is made the configuration registered into a reading dictionary.

[0056] Thus, in the constituted data-broadcasting display, the same actuation as the gestalt of said operation is carried out, a character string notation is carried out to the image display means 13 of a monitoring device 15, and synthesized speech is outputted from the voice output means 14. However, before analyzing an syntax-analysis means to the piece of a phoneme, it creates the table to which the character string notation and reading of the kanji were made to correspond, and it registers it into a reading dictionary. When the character string notation and reading of the kanji are registered, it already overwrites.

[0057] Moreover, although a case carries out the same actuation as the gestalt 1 of operation with reference to a reading dictionary only as for a character string notation, it carries out a character string notation to the image display means 13 of a monitoring device 15 and outputs synthesized speech from the voice output means 14, since alphabetic data is the case where dispatch [broadcasting station] is a kanji, and, as for a reading dictionary, the contents of a table are added, the applicability of the kanji of breadth alphabetic data becomes [the object range] large more.

[0058] The gestalt 4 reading dictionary 6 of operation is equipped also with the table correspondence-related [with reading over the notation which omitted the notation of normal other than the table with which the gestalt 1 of operation is equipped, and the notation of normal]. for example, the North Korea:butterfly plug / ***** / ***** / ***** which is not seen -- deep (Democratic People's Republic of Korea) -- the U.S. President:candy **** / ***** -- it is substance/-- it is ***** (American President) etc. In the data-broadcasting indicating equipment equipped with such a reading dictionary 6, the abbreviation which omitted the notation of normal is sufficient as the alphabetic data sent from a broadcasting station. When the alphabetic data sent from a broadcasting station is an abbreviation, in the alphabetic data distinction means 5 and the data-conversion means 11, processing with an abbreviation is performed and it writes in an abbreviation for the image display means of a monitoring device.

[0059] On the other hand, processing of speech synthesis synthesizes voice from reading which *(ed) for the notation of normal with reference to the reading dictionary 6, cries [of reading which *(ed) for the notation of this normal] in one voice at the notation time of day of the image display means of a monitoring device, and outputs it from the voice output means 14.

[0060] Thus, in the constituted data-broadcasting display, since a display with an image display means is an abbreviation, its screen product is small, and it will end, and that of broadcast regulation that voice must be made into reading of normal since it is read and outputted which *(ed) for the notation of voice output means 14 normal will also agree. Furthermore, in order that the notation character string from a broadcasting station may transmit in an abbreviation, there are few amounts of transmission and it ends.

[0061] Although the alphabetic data sent in order to display on the image display means 13 was outputted from the monitoring device

with the gestalt 1 of the gestalt 5 aforementioned implementation of operation whenever it inputted it, the data of the time of day which writes a character string notation and its character string may be multiplexed and broadcast from a broadcasting station. When a data-broadcasting indicating equipment inputs into beforehand [of information time of day] the Q signal of time of day which reports alphabetic data and its alphabetic data, the alphabetic character data storage section 3, the alphabetic data distinction means 5, the data-conversion means 11, and the ***** means 10 start processing, and memorize it, respectively in the memory of an axis of coordinates and time-axis command equipment 12. An axis of coordinates and time-axis command equipment 12 have a time-of-day setting means inside, and inputs into a time-of-day setting means the time of day which a Q signal reports. If an axis of coordinates and time-axis command equipment 12 become the time of day set up by the Q signal by the time-of-day setting means, it will read display translation data and synthesized speech from memory, will display display translation data on the image display means of a monitoring device, and will output synthesized speech from said voice output means.

[0062] Thus, since it can output with a monitoring device by constituting if alphabetic data is broadcast beforehand and the setting time of day by the Q signal comes when there are much a series of news and volume of a weather report, time delay is lost to the display and voice output in a monitoring device.

[0063] The gestalt data storage section 13 of six characters of operation forms two memory 3a and 3b in juxtaposition, as shown in drawing 2, and it forms the switches 3c and 3d for a change in the input section and the output section, respectively. Thus, in the constituted alphabetic character data storage section 13, when the alphabetic data from tuner equipment is stored by one memory 3a, it reads to display processing by memory 3b of another side. Although the alphabetic character data storage section 13 is sent to display processes at the alphabetic data distinction means 5 after it stores all a series of alphabetic data, when the number of memory is one. Thus, by forming Memory 3a and 3b in juxtaposition, and forming changeover switches 3c and 3d in the input section and the output section, respectively, if the one half of a series of alphabetic data by one memory 3a is stored, Switches 3c and 3d will be changed and it will send to the alphabetic data distinction means 5, and display processing is carried out. In memory 3b of another side, the alphabetic data from tuner equipment 2 is stored. Thus, with constituting, display start time becomes early, and it is convenient for a user. Moreover, by setting up suitably read-out for display processes, and the synchronization of storing, and changing Switches 3c and 3d one by one, memory does not need to store all a series of alphabetic data, and there is little capacity of memory and it ends.

[0064] As long as there is no incident with gestalt 7 weather report and topical news of operation sudden after 1 - 2-hour progress, usually the same thing as the previous contents is broadcast. In such a case, it is made to output only that from which the contents of broadcast changed from a monitoring device.

[0065] Drawing 3 is the block diagram showing the alphabetic data distinction means which is the gestalt of this operation. Other configurations are the same as that of what is shown in drawing 1. In drawing, 5a distinguishes coincidence/inequality of the character string read from said alphabetic character data storage section 3, and the fixed form character string stored in the character-pattern memory 4. An alphabetic data fixed form character string-ized means to identify the fixed form character string contained in this alphabetic data. The memory 5b has remembered the output of the alphabetic data distinction means 5 to be, and 5b compare the fixed form character string memorized by the fixed form character string from alphabetic data fixed form character string means 5a, and memory 5b. Coincidence/inequality is distinguished, when in agreement, an output is not generated, but only when in agreement, it is an old and new fixed form character string comparison means to generate an output. In addition, said memory 5b rewrites the fixed form character string memorized with the output of old and new fixed form character string comparison means 5c.

[0066] Thus, the constituted alphabetic data distinction means 5 distinguishes coincidence/inequality of the fixed form character string stored in the character-pattern memory 4, and the character string read from said alphabetic character data storage section 3 by alphabetic data fixed form character string-ized means 5a. Since the contents of memory and old and new fixed form character string comparison means 5c which memorize the identified fixed form character string and the fixed form character string displayed and outputted from the monitoring device last time compare, and an image and voice are already reported by the monitoring device 15 when the same, generating of an output is stopped. Since it is not reported yet by the monitoring device 15 when it differs, an output is generated. And the same processing as the gestalt 1 of operation is carried out, and an image and voice are reported from a monitoring device 15 henceforth. On the other hand, said memory 5b inputs the output of old and new fixed form character string comparison means 5c, and rewrites the fixed form character string memorized to a new fixed form character string.

[0067] As shown in gestalt 8 drawing 4 of operation, two monitoring devices are prepared, and it connects with an axis of coordinates and time-axis command equipment 12. An axis of coordinates and time-axis command equipment 12 are made the configuration which generates the signal controlled to assign the range which displays a series of news and weather reports with the image display means of two monitoring devices. Thus, when neither a series of news nor volume of a weather report can display with the image display means of the monitoring device of a piece mostly by constituting, the character string which cannot be displayed on the image display means 13 of the method of one can be displayed somewhat long, without changing into the display of the following display translation data for a short time what was displayed on the image display means 13 by displaying on the image display means 13 of another side. It is assigned by the voice output means of the monitoring device of each data-broadcasting display with an interface signal so that synthesized speech may also be outputted according to the contents of a display of an image display means, of course.

[0068] As shown in gestalt 9 drawing 5 of operation, two data-broadcasting indicating equipments are prepared, two data-broadcasting indicating equipments are connected mutually, and the axis of coordinates and time-axis command equipment of any one data-broadcasting indicating equipment are made the configuration which outputs the interface signal which controls news and the range which indicates by the weather report of a single string displayed with the image display means of the monitoring device of each data-broadcasting indicating equipment to take and share a synchronization to other data-broadcasting indicating equipments. It is assigned by the voice output means of the monitoring device of each data-broadcasting display with an interface signal so that synthesized speech may also be outputted according to the contents of a display of an image display means, of course. Thus, it can display somewhat long, without changing into the next display for a short time what was displayed with the image display means, when neither a series of news nor volume of a weather report can display with each data-broadcasting display of a piece mostly by constituting

[0069] Furthermore, the axis of coordinates and time-axis command equipment of the data-broadcasting indicating equipment which

generates an interface signal supervise the record situation of the memory of the alphabetic character data storage section 3, and if there are much a series of news and volume of a weather report and the memory space of the alphabetic character data storage section 3 runs short, it directs to carry out display processing of a continued part to the data-broadcasting indicating equipment of another side connected with an interface signal. With directions of this interface signal, the data-broadcasting indicating equipment of another side starts processing so that it may display and the voice output of a continued part of one data-broadcasting indicating equipment may be carried out. Thus, by constituting, a voice output can be displayed and carried out to the last, without a series of news, the display of a weather report, and a voice output breaking off on the way, even if there are much a series of news and volume of a weather report and the memory space of the alphabetic character data storage section 3 runs short. In addition, for the data-broadcasting display connected mutually, it is ***** about argument not only two pieces but that you may be three or more pieces.

[Effect of the Invention] according to the data-broadcasting indicating equipment applied to this invention as explained above -- the enumeration data of a mere alphabetic character -- a check by looking -- an easy format -- for example, an icon, a map, a characteristic background image, the expanded alphabetic character, a legible font, and a font color -- a conversion-table example and alphabetic data -- visibility, since synthesized speech is also outputted to the explanation at the same time it displays highly By enabling instant understanding, a lot of alphabetic data can be more widely utilized for those who check by looking effectively.

[Translation done.]